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PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Malouf et al.

Examiner: Not Assigned

Application No.: 10/029,413

Group Art Unit: Not Assigned

Filed: December 20, 2001

Docket No.: 421/29/2

Confirmation No.: 3695

For: PURIFIED AND ISOLATED PLATELET CALCIUM CHANNEL NUCLEIC ACIDS AND POLYPEPTIDES AND THERAPEUTIC AND SCREENING METHODS USING SAME

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TRANSMITTAL OF FORMAL DRAWINGS

Dear Sir:

Please find enclosed a new set of formal drawings (17 sheets) for filing in the above-identified U.S. Patent Application.

Although a check is being submitted, the Commissioner is hereby authorized to charge any deficiencies of payment associated with the filing of this correspondence to Deposit Account No. 50-0426.

Respectfully submitted,

JENKINS & WILSON, P.A.

Date: 03/18/2002

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Customer No. Bar Code Label: 

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PATENT TRADEMARK OFFICE

FIG. 1A

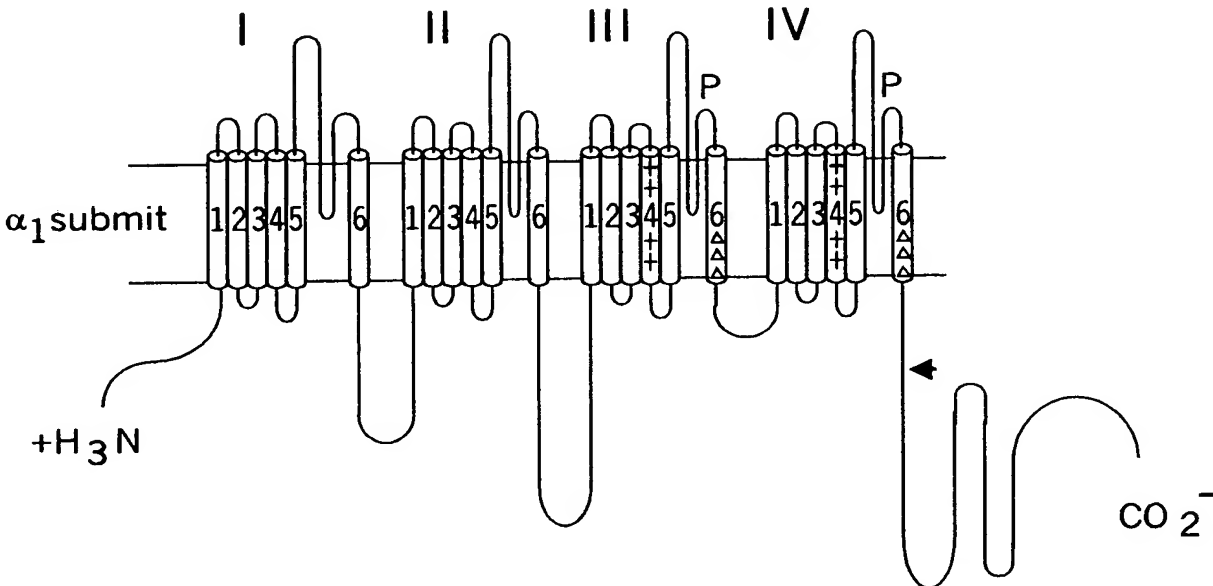


FIG. 1B

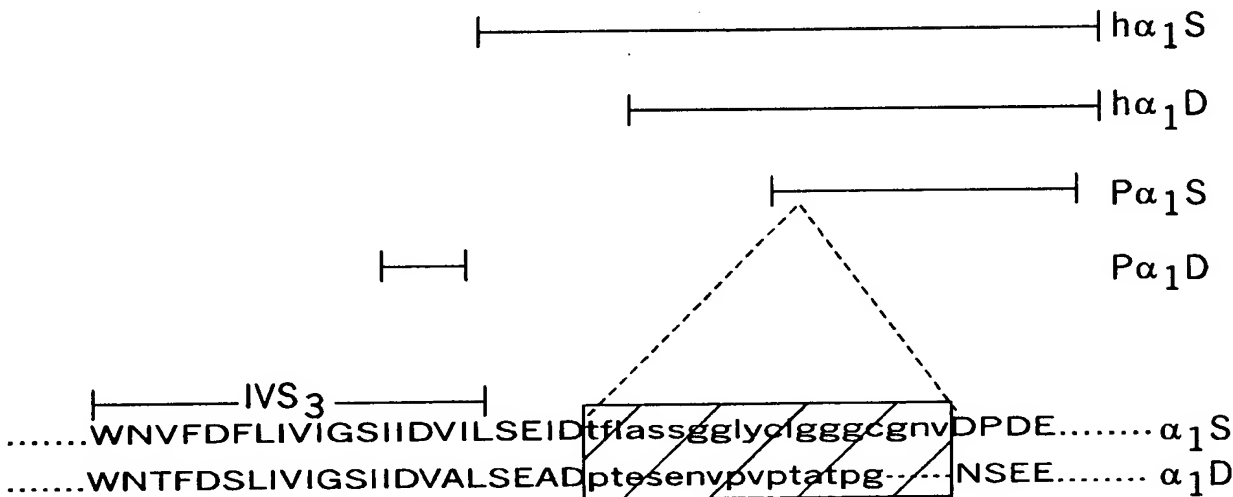


FIG. 1C

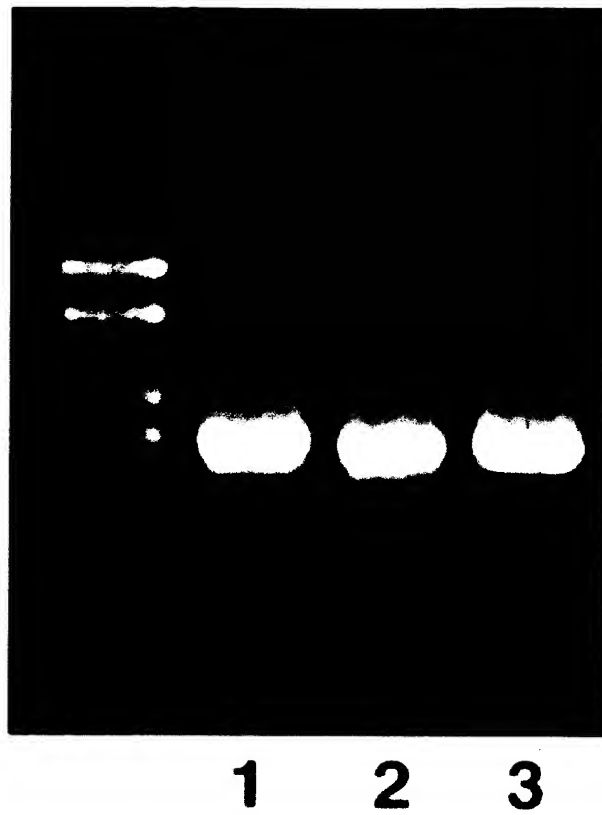


FIG. 1D

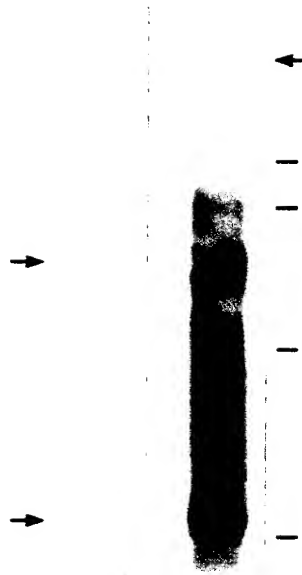


FIG. 2A

FIG. 2B



>ref|XM 001910.1| Homo sapiens calcium channel, voltage-dependent, L type,
 alpha 1S subunit (CACNA1S), mRNA, Length = 6615

FIG. 3A

Score = 79.8 bits (40), Expect = 1e-12
 Identities = 46/48 (95%)
 Strand = Plus / Plus

Query: 1 ctgattgtcatcggcagcatcattgacgtcatcctcagtgagatcgac 48
 |||||
 Sbjct: 3938 ctgattgtcattggcagcatcattgatgtcatcctcagtgagatcgac 3985

Score = 622 bits (314), Expect = e-176
 Identities = 462/510 (90%), Gaps = 1/510 (0%)
 Strand = Plus / Plus

Query: 49 gacccgacgagagtgcccgcatctccagcgcttctccgctgttccgggtcatgagg 108
 |||||
 Sbjct: 4043 gacccagatgagagtgcccgcatctccagcgcttctccgctgttccggtcatgagg 4102

Query: 109 ttgatcaagctgctgagccgcgcgagggcgctgcgacgctgctccggaccttcatcaag 168
 |||||
 Sbjct: 4103 ctgatcaagctgctgagccgggcagagagtgcgaaacctcctgtggacgttcatcaag 4162

Query: 169 tccttccaggccctgcctacgtggctctgctcatcgtcatgctcttcttcatctatgct 228
 |||||
 Sbjct: 4163 tccttccaggccctacccctacgtggctctgctcatcgtcatgctcttcttcatctacgct 4222

FIG. 3B

```
Query: 229  gtcatcggcatgcagatgcttctgggaagatcgccatggcggacggaacccagataaacccgg 288
          ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Sbjct: 4223  gtcatcggcatgcagatgcttctgggaagatcgccctggcggatgggacccaataaacccgg 4282

Query: 289  aacaacaatttccagacaccttccctcaggctgtgctgctgctcttcaggcgcgccacgggt 348
          ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Sbjct: 4283  aacaacaatttccagacaccttcccaagaagctgtgctactgctctcttcaggcgtgcaacaggc 4342

Query: 349  gagggcgtggcaggagatccctgctggcctgcagggtacgggcagctgtgcgaccccgagtc 408
          ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Sbjct: 4343  gagggcgtggcaggagatccctactggcctgcagctatgggaagctgtgtgacccagagtcg 4402

Query: 409  gactacctccctggggaggagtataacctgcggcacgcgacttcgcctactactacttcattc 468
          ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Sbjct: 4403  gactatgccccaggggaggagtacacatgtggcaccaacttctgcatactactacttcattc 4462

Query: 469  agcttctacatgctctgtgaccttccctgatcatcaacctcttctgtggctgtgatcatggac 528
          ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Sbjct: 4463  agcttctacatgctctgtgaccttccctggcctcaacctcttctgtggctgtgatcatggac 4522

Query: 529  aattcttgactacctcaccctggactggctcc 557
          ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Sbjct: 4523  aattcttgactacctcaccctggactggctcc 4552
```

FIG. 3C

>ref|NM_000069.1| Homo sapiens calcium channel, voltage-dependent, L type, alpha 1S, subunit (CACNA1S), mRNA, Length = 6160

```
Score = 79.8 bits (40), Expect = 1e-12
Identities = 46/48 (95%)
Strand = Plus / Plus
```

Query: 1 ctgattgtcattcggcagcatcattgacgtcattccctcagtgagatcgac 48
|||||
Sbjct: 3787 ctgattgtcattcggcagcatcattgacgtcattccctcagtgagatcgac 3834

Score = 622 bits (314), Expect = e-176
Identities = 462/510 (90%), Gaps = 1/510 (0%)
Strand = Plus / Plus

```

Query: 49      gacccgacgagagtgcccgcatctccagcgccctctctccgacctctccgggtcatgagg 108
              ||||| || ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Sbjct: 3892    gaccacagatgagagtgcccgcatctccagcgccctctctccgacctctccgtgcatgagg 3951

```

```

Query: 109      ttgatcaagctgctgagccgcgcgagggcgctgcgcacgctgctccggacctcatcaag 168
               |||||
Sbjct: 3952      ctgatccaagctgctgagccgggcagaggagctgcgaacctccctgctggacgttcattcaag 4011

```

```

Query: 169      tccttccaggccctgcccctacgtggctctgctcctgctcctccttcctcatctatgct 228
              |||||
Sbjct: 4012      tccttccaggccctaccctacgtggctctgctcctgctcctccttcctcatctatgct 4071

```

FIG. 3D

Query: 229 gtcacggcatgcagatgtttgggaagatcgccatggtggacggaaacccagataaaacggg 288
|||||
Sbjct: 4072 gtcacggcatgcagatgtttgggaagatcgcccttggcgatgggaccccaataaaacggg 4131
|||||

Query: 289 aacaacaatttccagacaccttccctcaggctgtgctgctgctccttcagggtgcgcccaggggt 348
|||||
Sbjct: 4132 aacaacaacttccagacaccttccccaagaagtgtgctactgctcttcagggtgtgcaacagggt 4191
|||||

Query: 349 gaggcgtggcaggagatcctgctggcctgcaggtaaggcagctgtgcgaccccgagtca 408
|||||
Sbjct: 4192 gaggcctggcaggagatcctactgacctgacctgtggaagctgtgtgacccagagtcg 4251
|||||

Query: 409 gactacctccctggggaggagatataacctgcggcaccgacttcgacctactacttccatc 468
|||||
Sbjct: 4252 gactatgccccaggggaggaggtacacatgtggcaccaccttctgcatactactacttccatc 4311
|||||

Query: 469 agctttctacatgctctgtgaccttcctgatcatcaacctcttctgtggctgtgatcatggac 528
|||||
Sbjct: 4312 agctttctacatgctctgtgaccttcctgatcatcaacctcttctgtggctgtgatcatggac 4371
|||||

Query: 529 aatttttgactaccttcacccc-ggactgggtcc 557
|||||
Sbjct: 4372 aatttttgactaccttcaccccgggactgggtcc 4401
|||||

FIG. 3E

>gb|L33798.1|HUMCACNLA Human dihydropyridine-sensitive L-type calcium channel
 alpha-1 subunit (CACNL1A3) mRNA, complete cds, Length = 6160

Score = 79.8 bits (40), Expect = 1e-12
 Identities = 46/48 (95%)
 Strand = Plus / Plus

Query: 1 ctgattgtcatcggcagcatcattgacgtcatcctcagtgagatcgac 48
 |||||
 Sbjct: 3787 ctgattgtcatcggcagcatcattgacgtcatcctcagtgagatcgac 3834

Score = 622 bits (314), Expect = e-176
 Identities = 462/510 (90%), Gaps = 1/510 (0%)
 Strand = Plus / Plus

Query: 49 gaccccgacgagagtgcgcgcatctccagcgcccttctccgcctgttccgggtcatgagg 108
 |||||
 Sbjct: 3892 gaccccgacgagagtgcgcgcatctccagcgcccttctccgcctgttccgtgtcatgagg 3951

Query: 109 ttgatcaagctgtgagccgcgcgagggcgtgcgcacgctgctccggacccttcatcaag 168
 |||||
 Sbjct: 3952 ctgatcaagctgtgagccggcgagaggagtcggaaccctcctctgtggacgttcatcaag 4011

Query: 169 tccctccaggccctgccctacgtggctctgtcgtcatgctctcttcttcatctatgct 228
|||||
Sbjct: 4012 tccctccaggccctaccctacgtggctctgtcgtcatgctctcttcttcatctacgct 4071
|||||

Query: 229 gtcctcggcatgcagatgttttgggaagatcgccatgggtggacggaaaccagataaaaccgg 288
|||||
Sbjct: 4072 gtcctcggcatgcagatgttttgggaagatcgccctgggtggatgggacccaataaaaccgg 4131
|||||

Query: 289 aacaacaatttccagaccttccctcaggctgtgctgctcttccaggtgcgccaccgggt 348
|||||
Sbjct: 4132 aacaacaacttccagaccttcccaaacagctgtgctactgctcttccaggtgtgcaaacagggt 4191
|||||

Query: 349 gaggcgtggcaggagatcctgctggcctgcaggtaaggcagctgtgcgacccccgagttca 408
|||||
Sbjct: 4192 gaggcctggcaggagatcctactggcctgcagctatgggaagctgtgtgacccagagtcg 4251
|||||

Query: 409 gactacctccccctggggaggagatatacctggggcaccgacttcgectactactacttctcatc 468
|||||
Sbjct: 4252 gactatgccccagggaggaggatcacacatgtggcaccaccttctgcatactactacttctcatc 4311
|||||

Query: 469 agcttctacatgctctgtgccttccctgatcatcaacctcttctgtggctgtgatcatggac 528
|||||
Sbjct: 4312 agcttctacatgctctgtgccttccctgggtcatcaacctcttctgtggctgtcatcatggac 4371
|||||

Query: 529 aatttttgactacctcacc-ggactgggtcc 557
|||||
Sbjct: 4372 aatttttgactacctcaccgggactgggtcc 4401
|||||

FIG. 3F

FIG. 4A

>ref|XM_001910.1| Homo sapiens calcium channel, voltage-dependent, L type,
 alpha 1S subunit (CACNA1S), mRNA, Length = 6615

Score = 107 bits (54), Expect = 5e-21
 Identities = 63/66 (95%)
 Strand = Plus / Plus

Query: 1 tggaatgtgttcgacttcctgattgtcatcggcagcatcattgacgtcatcctcagtgag 60
 |||||
 Sbjct: 3920 tggaatgtgttcgacttcctgattgtcatcggcagcatcattgacgtcatcctcagtgag 3979

Query: 61 atcgac 66
 |||||
 Sbjct: 3980 atcgac 3985

Score = 507 bits (256), Expect = e-141
 Identities = 388/432 (89%)
 Strand = Plus / Plus

Query: 67 gaccccgacgagagtgcccgcatctccagcgcttcttccgcctgttccgggtcatgagg 126
 |||||
 Sbjct: 4043 gacccagatgagagtgcccgcatctccagcgcttcttccgcctgttccgtgtcatgagg 4102

Query: 127 ttgatcaagctgctgagccgcgagggcgctgcgacgctgctctggaccttcatcaag 186
 |||||
 Sbjct: 4103 ctgatcaagctgctgagccggcgagaggagtgcgaacctctctgtggacgttcatcaag 4162

FIG. 4B

```
Query: 187  tccttccaggccctgcccctacgtggctctgctcctcgtcgtcgtccttcttctcctatgct 246
          |||||
Sbjct: 4163  tccttccaggccctacccctacgtggctctgctcctcgtcgtcgtccttcttctcctatgct 4222

Query: 247  gtcacggcatgcagatgcttctgggaagatcgccatgggtggacggaacccagataaacccgg 306
          |||||
Sbjct: 4223  gtcacggcatgcagatgcttctgggaagatcgccatgggtggacggaacccagataaacccgg 4282

Query: 307  aacaacaatttccagacccttccctcaggctgtgctgctgctcctcaggtggtccacgggt 366
          |||||
Sbjct: 4283  aacaacaacttccagacccttcccaaaagtgtgctactgctcctcaggtgtgcaacagggt 4342

Query: 367  gaggcgtggcaggagatcctgctggcctgcagggtacgggcagctgtgcgaccccgagtca 426
          |||||
Sbjct: 4343  gaggcctggcaggagatcctactggcctgcagctatgggaagctgtgtgaccagagtcg 4402

Query: 427  gactacctccctggggaggagtatacctgcggcacccgaccttcgacctactacttctcctc 486
          |||||
Sbjct: 4403  gactatgccccaggggaggagtacacatgtggcaccaacttctgcatactactacttctcctc 4462

Query: 487  agcttctcatatg 498
          |||||
Sbjct: 4463  agcttctcatatg 4474
```

FIG. 5A

>ref|XM_003238.1| Homo sapiens calcium channel, voltage-dependent, L type,
 alpha 1D subunit (CACNA1D), mRNA, Length = 7362

Score = 89.7 bits (45), Expect = 1e-15
 Identities = 45/45 (100%)
 Strand = Plus / Plus

Query: 1 ctcatcgtaatcggcagcattatagacgtggccctcagcgaagca 45
 |||||
 Sbjct: 4171 ctcatcgtaatcggcagcattatagacgtggccctcagcgaagca 4215

Score = 946 bits (477), Expect = 0.0
 Identities = 496/500 (99%), Gaps = 2/500 (0%)
 Strand = Plus / Plus

Query: 49 aactctgaagagagcaatagaaatctccatcaccttttccggtcttttccgagtgatgcga 108
 |||||
 Sbjct: 4264 aactctgaagagagcaatagaaatctccatcaccttttccggtcttttccgagtgatgcga 4323

Query: 109 ttggtgaagcttctcagcaggggggaaggcatccggacattgctgtggacttttattaaag 168
 |||||
 Sbjct: 4324 ttggtgaagcttctcagcaggggggaaggcatccggacattgctgtggacttttattaaag 4383

Query: 169 tcctttcaggcgctcccgatgtggccctcctcatagccatgctgttcttccatctatgcg 228
 |||||
 Sbjct: 4384 tcctttcaggcgctcccgatgtggccctcctcatagccatgctgttcttccatctatgcg 4443

Query: 229 gtcatcggcatgcagatgctcgggaaagtcccatggagagataacaaccagatcaatagg 288
|||||
Sbjct: 444 gtcatcggcatgcagatgctcgggaaagtcccatggagagataacaaccagatcaatagg 4503

Query: 289 aacaaataacttccagacgcttccccaggcggcgctgctgtctcttcagggtgtgcaacaggct 348
|||||
Sbjct: 4504 aacaaataacttccagacgcttccccaggcggcgctgctgtctcttcagggtgtgcaacaggct 4563

Query: 349 gaggccctggcaggagatcatgctggcctgtctccagggaagctctgtgacctgagtc 408
|||||
Sbjct: 4564 gaggccctggcaggagatcatgctggcctgtctccagggaagctctgtgacctgagtc 4623

Query: 409 gattacaacctcgggaggaggtatatacatgtgggagcaactttgccatttgcttatcttcac 468
||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||

Sbjct: 4624 gattacaaccccgaggaggagtatacatgtgggagcaactttgccatttgcttatcttcac 4683

Query: 469 agntttttacatgctctgtgcatttctga-catcaatctgtttggctggcctcatcatgga 527
|| ||||||| ||||||| ||||||| ||||||| ||||||| ||||||| |||||||

Sbjct: 4684 agttttttacatgctctgtgcatttctgatcatcaatctgttt-gtggctgtcatcatgga 4742

Query: 528 caatttcgactatctgacc 547
|||||
Sbjct: 4743 caatttcgactatctgacc 4762

FIG. 5C

>ref|NM_000720.1| Homo sapiens calcium channel, voltage-dependent, L type,
 alpha 1D subunit (CACNA1D), mRNA, Length = 7193

Score = 87.7 bits (44), Expect = 5e-15
 Identities = 44/44 (100%)
 Strand = Plus / Plus

Query: 1 ctcatcgtaatcggcagcattatagacgtggccctcagcgaagc 44
 |||||
 Sbjct: 4001 ctcatcgtaatcggcagcattatagacgtggccctcagcgaagc 4044

Score = 946 bits (477), Expect = 0.0
 Identities = 496/500 (99%), Gaps = 2/500 (0%)
 Strand = Plus / Plus

Query: 49 aactctgaagagagcaatagaatctccatcacctttttccgctctttccgagtgatgcga 108
 |||||
 Sbjct: 4094 aactctgaagagagcaatagaatctccatcacctttttccgctctttccgagtgatgcga 4153

Query: 109 ttggtgaagctttctcagcagggggaaggcatccggacattgctgtggacttttattaaag 168
 |||||
 Sbjct: 4154 ttggtgaagctttctcagcagggggaaggcatccggacattgctgtggacttttattaaag 4213

Query: 169 tcccttcaggcgctcccgatgtggccctcctcatagccatgctgttcttcatctatgcg 228
 |||||
 Sbjct: 4214 tcccttcaggcgctcccgatgtggccctcctcatagccatgctgttcttcatctatgcg 4273

FIG. 5D

Query: 229 gtcattggcatgcagatgtcttgggaaagtggccatgagagataacaaccagatcaatagg 288
|||||
Sbjct: 4274 gtcattggcatgcagatgtcttgggaaagtggccatgagagataacaaccagatcaatagg 4333
|||||

Query: 289 aacaataacttccagacgtttcccccaggcggctgctgctcttcaggctgtgcaacagggt 348
|||||
Sbjct: 4334 aacaataacttccagacgtttcccccaggcggctgctgctcttcaggctgtgcaacagggt 4393
|||||

Query: 349 gaggcctggcaggagatcatgctggcctgtctccagggaagctctgtgacctgagttca 408
|||||
Sbjct: 4394 gaggcctggcaggagatcatgctggcctgtctccagggaagctctgtgacctgagttca 4453
|||||

Query: 409 gattacaacctcggggaggagtatacatgtgggagcaactttgccattgtctatttcattc 468
|||||
Sbjct: 4454 gattacaacctcggggaggagtatacatgtgggagcaactttgccattgtctatttcattc 4513
|||||

Query: 469 agntttttacatgctctgtgcatttcttga-catcaactctgttttgggtggctgtcatcattgga 527
|||
Sbjct: 4514 agntttttacatgctctgtgcatttcttga-catcaactctgtttt-gtggctgtcatcattgga 4572
|||

Query: 528 taatttcgactatcttgaccc 547
|||||
Sbjct: 4573 taatttcgactatcttgaccc 4592
|||||

FIG. 5E

>gb|M83566.1|HUMCACH1A Human neuroendocrine/beta-cell-type calcium channel
 alpha-1 subunit mRNA, complete cds, Length = 7193

Score = 87.7 bits (44), Expect = 5e-15
 Identities = 44/44 (100%)
 Strand = Plus / Plus

Query: 1 ctcatcgtaatcggcagcattatagacgtggccctcagcgaagc 44
 |||||
 Sbjct: 4001 ctcatcgtaatcggcagcattatagacgtggccctcagcgaagc 4044

Score = 946 bits (477), Expect = 0.0
 Identities = 496/500 (99%), Gaps = 2/500 (0%)
 Strand = Plus / Plus

Query: 49 aactctgaagagagcaatagaatctccatcacctttttccggtctttccgagtgatgcga 108
 |||||
 Sbjct: 4094 aactctgaagagagcaatagaatctccatcacctttttccggtctttccgagtgatgcga 4153

Query: 109 ttggtgaagcttctcagcaggggggaaggcatccggacattgctgtggacttttattaaag 168
 |||||
 Sbjct: 4154 ttggtgaagcttctcagcaggggggaaggcatccggacattgctgtggacttttattaaag 4213

Query: 169 tcccttcaggcgctcccgtatgtggccctcctcatagccatgctgttcttcatctatgcg 228
|||||
Sbjct: 4214 tcccttcaggcgctcccgtatgtggccctcctcatagccatgctgttcttcatctatgcg 4273
|||||

Query: 229 gtcattggcatgcagatgtttgggaaagtggccatgagagataaacaaccagatcaatagg 288
|||||
Sbjct: 4274 gtcattggcatgcagatgtttgggaaagtggccatgagagataaacaaccagatcaatagg 4333
|||||

Query: 289 aacaataacttccagacgtttccccaggcggtgctgctcttcagggtgtgcaacaggc 348
|||||
Sbjct: 4334 aacaataacttccagacgtttccccaggcggtgctgctcttcagggtgtgcaacaggc 4393
|||||

Query: 349 gaggcctggcaggagatcatgctggcctgtctcccagggaagctctgtgacctgagtc 408
|||||
Sbjct: 4394 gaggcctggcaggagatcatgctggcctgtctcccagggaagctctgtgacctgagtc 4453
|||||

Query: 409 gattacaacctcggggaggaggtatatacatgtgggagcaactttgccattgtctatctcatc 468
|||||
Sbjct: 4454 gattacaacctcggggaggaggtatatacatgtgggagcaactttgccattgtctatctcatc 4513
|||||

Query: 469 agnttttacatgctctgtgcatttctga-catcaatctgtttgggtgctgctcatcagg 527
|||||
Sbjct: 4514 agtcttttacatgctctgtgcatttctgcatcttctgcatcatcaatctgttt-gtgggtgctgctcatcagg 4572
|||||

Query: 528 taatttcgactatcttgaccc 547
|||||
Sbjct: 4573 taatttcgactatcttgaccc 4592
|||||

FIG. 5F